

A POSSIBLE GLOW EXPERIMENT FOR THE EOM 1-2 MISSION

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Abstract

At this time, information on the surface glows and the spatial extent of these glows is very limited. Several fundamental aspects of the glow have yet to be measured, and this situation is not likely to change in the near future because of the limited flight opportunities for such studies. Thus, opportunities to gather the much needed data on this subject using investigations already planned are most valuable.

A possible opportunity for such a study exists during the EOM 1-2 mission scheduled for launch on September 3, 1986. An experiment during this mission could provide the VUV-VIS-NIR spectral characteristics of the glow at approximately 5 Å spectral resolution. However, the EOM 1-2 mission has a very full schedule that already places great demands on the mission planners and investigators. At this time it is not clear whether the natural concerns associated with inserting or substituting a new experiment, however nominal, can be satisfactorily overcome. Therefore, the concept outlined below is at present a concept only.

The EOM 1-2 payload includes spectroscopic and photometric instruments which operate in wavelength regions of great interest to the glow assessment activity. However, as in the case of many remote sensing instruments, these are located in the payload bay in such a way as to avoid viewing any shuttle or payload surfaces. If these instruments are to measure the spectral characteristics of surfaces, it is necessary for such surfaces to be positioned in the field of view of these instruments for the duration of the particular measurement sequence. It is possible that the shuttle on which the EOM 1-2 payload flies will have an RMS in place. An assessment has shown that it is indeed feasible to place a four-sided "cuff" around the end of the RMS. The four sides, each coated with a different material, can then be positioned in turn above the instruments, and in such a way that the surface is alternately pointed into the ram and into the wake.

The implementation of such a measurement sequence is still being evaluated at this time.